

REMARKS

By Office Action dated 03 April 2007, Claims 1-22 were allowed, and Claims 23-46 were withdrawn from consideration as directed to a non-elected invention. In a response filed on [date], Claims 3, 9, 10, 12- 14 and 16 were amended, and Claims 23-46 were cancelled to be pursued in a later filed divisional application. Subsequently in Office Action mailed 09/24/07, the allowance of claims 1-22 was rescinded by the Office and claims 1-15, 20 and 21 were rejected, and claims 16-19 and 22 were objected to.

Claims 1-15 and 20-21 were rejected under 35 USC 103(a) as being unpatentable over Derand (US 2002/0125135) in view of the reference CH cited in the Information Disclosure Statement, YU C., Xu M., Svec F., Fréchet J.M.J. “Preparation of monolithic polymers with controlled porous properties for microfluidic chip applications using photoinitiated free-radical polymerization,” *J. Polym. Sci., Polym. Chem.* 2002, *40*, 755. Office Action at page 3. The Office alleges that “it would have been obvious to one having ordinary skill in the art to provide a porous polymer monolith as disclosed in Yu in the channel of Derand to achieve predictable results of increasing the use of Derand’s systems...” Ibid at 5. The Office characterizes Derand as teaching “a first polymer attached to the channel through photoinitiated grafting of a first monomer to selected regions of the channel surface.” Ibid at 3.

Applicants disagree with the Examiner’s characterization of Derand et al. Applicants respectfully assert that the Examiner is not correct in stating that “Derand teaches a first polymer attached to the channel through photoinitiated grafting ... (see [0065-0070]).” In paragraphs [0064] to [0079], Derand et al. clearly speak only about materials from which the microfluidic device is made, as shown by the heading in paragraph [0064], “Material in the microfluidic device.” Furthermore, Derand et al. teach a method for coating, as shown in paragraph [0065] which teaches “[t]he surface to be coated according to the invention typically is made of ... plastics,” and paragraph [0066] teaches “[p]lastics to be coated according to the invention...” The examples shown on pages 5 and 6 describe “A COAT of PEG-PEI ADDUCT” and “POLY(ACRYLAMIDE) COATING.”

In contrast, our application teaches a grafting approach which acts to bond the monolith to the channel surface. The free radical initiating the grafting resides at the channel surface and the polymer grows from that point (see Ranby et al. Nucl. Instr. Meth. Phys. Res.). Therefore, there is no need in our approach for any multistep coating treatment characteristic of Derand. Nowhere do Derand or Yu teach or suggest that there is a need to bond a monolith to the channel surface to prevent the formation of voids at the monolith-wall interface at the channel surface. See page 24 of the specification. Again, Derand teaches only the coating of a surface and Yu teaches porous polymer monoliths prepared on channels of microfluidic devices. Thus, because there is no recognized need in the cited references to bond a monolith to the channel, the combination of the two references would not produce the microfluidic device as claimed, nor would it have been obvious to one having skill in the art to combine these references to produce the device as claimed. Applicants have amended claim 1 and 20 to more clearly state that the monolith is bonded to the surface of the channel. Support for this amendment can be found at page 24 and Figure 2.

The Office has indicated that claims 16-19 and 22 are allowable if rewritten in independent form including all of the limitations of the base claim. Applicants thank the Examiner. In the sole interest of furthering Applicants' patent goals and not in acquiescence or agreement to the Examiner's rejections, Applicants have amended claim 1 and 20 to incorporate that the microfluidic device further comprising (d) a polymer chain having a functional group attached to a portion of the porous polymer monolith by photoinitiated grafting of a third monomer, wherein the third monomer is different from the second monomer.

Applicants have also cancelled claims 16 and 21 which were incorporated into independent claims 1 and 20. Claims 17-19 were amended to depend from claim 1 and claim 22 is amended to depend from claim 20. No new matter is believed to have been added by these amendments. Applicants respectfully request that these amendments be entered and the claims allowed.

CONCLUSION

A fee of \$65 is believed due for a one-month extension of time. A petition for extension of time is included herewith. The Commissioner is authorized to charge any necessary and additional fees that may be due to Deposit Account No. 120690.

For the reasons set forth above, Applicants respectfully request that a timely Notice of Allowance be issued in this case. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, Applicants encourage the Examiner to call the undersigned at (510) 495-2456.

Respectfully submitted,

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